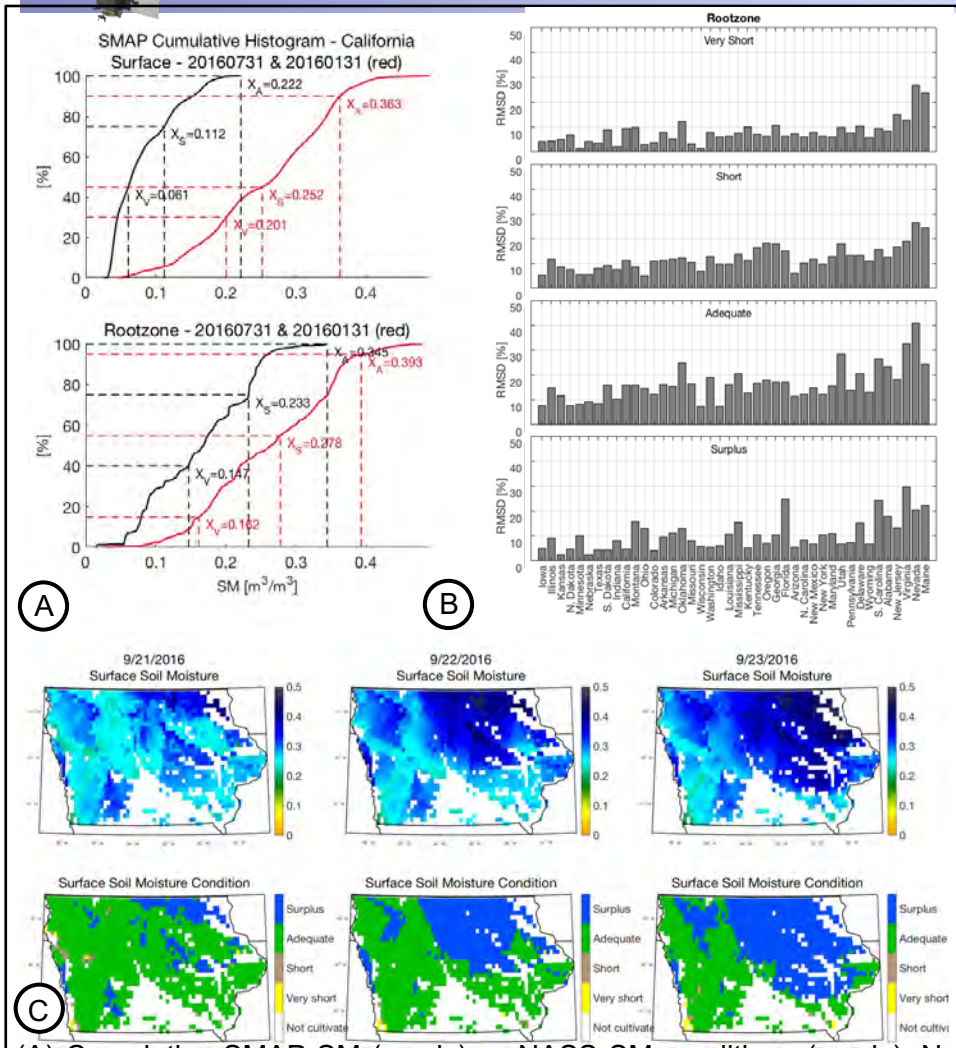
SMAP Measurements Can Enhance USDA National Agricultural Statistics Service Soil Moisture Assessments



(A) Cumulative SMAP SM (x-axis) vs NASS SM conditions (y-axis). Note the seasonal difference (black vs. red). (B) Difference between SMAP based SM classification to the NASS based classification for each state. (C) Daily SMAP derived SM conditions using the NASS categories for Iowa. SMAP is able to track the evolution of the SM conditions in space and time.

Problem: The USDA National Agricultural Statistics Service (NASS) Crop Progress reports on soil moisture in its weekly Crop Progress report based on manual surveys and at the state level.

Finding: Year-over-year, the SMAP cumulative SM distributions were consistent with the NASS SM conditions, and that the temporal evolution of the SMAP-derived thresholds are consistent with the seasonal crop growth cycles.

Impact: Combining the two results in a value-added assessment enabling cropland SM mapping and state-level statistics on daily intervals (rather than weekly).

Colliander, et al., 2019: Consistency between NASS surveyed soil moisture conditions and SMAP soil moisture observations, *Water Resources Research*.